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WISCONSIN: LEVITATED OCTUPOLE

- $B_p$ windings
- to turbopump
- Levitated rings
- Ti getter
- He cryopanel
- Iron core
- Neutral beams
- Nitrogen-cooled liner
- $B_T$ windings
- Plasma guns (3)
- ICRH source

Dimensions:
- 1 m
- 1.4 m
TYPICAL SINGLE SHOT PARAMETERS

- $P_{in} = 0.8$ MW
- $N = 5 \times 10^{12} \text{ cm}^{-3}$
- $N_h/N_e = 0.5$
- $T_e = 40$ eV
- $T_{i\text{one}} = 60$ eV cold component
  $300$ eV hot component
- $B = 1.0$ kG at antenna
  $2.5$ kG at outer ring
- $10$ gyroradii at $300$ eV
- ion energy confinement
  time $= 1.0$ msec (measured)
- ion-electron equilibration
  time $= 0.8$ msec (calc.)
- hot-cold ion equilibration
  time $= 0.9$ msec (calc.)
FARADAY SHIELD STRIPS

120° AT TOROIDAL MID CYLINDER

OCTUPOLE LOWER LID

TO OSCILLATOR

FEED-THRU ROD

COPPER STRIP
ICRH RESONANCE

- VACUUM
- WITH PLASMA

E/E₀ vs. CM ABOVE ANTENNA
POWER BALANCE

HOT IONS
300 eV
1 x 10^{12} \text{ cm}^{-3}

C-X (meas.)
200 kW

OBST. (calc.)
75 kW

50 kW
COULOMB COLLISIONS (calc.)

50 eV
1 x 10^{12} \text{ cm}^{-3}

COLD IONS

50 kW
OBST. (calc.)

25 kW

C-X (meas.)

IMPURITY RADIATION

?  \sim 0

ELECTRONS
50 eV
2 x 10^{12} \text{ cm}^{-3}

OBST. (calc.)
30 kW

RF (meas.)
600 kW